

REMARKS

DRAWINGS

The drawings were objected to as allegedly failing to comply with 37 CFR 1.84(p)(5) because they include reference sign(s) 17-17 and 18-18 not mentioned in the description.

Applicant has amended the Brief Description of the Drawings section of the Specification to include Figures 17 and 18 that contain reference sign(s) 17-17 and 18-18. MPEP §608 states that “Applicant may rely for disclosure upon the specification . . .” As further illustrated at MPEP 608.01(a) under section heading Arrangement of the Specification, the specification is listed as including, among other things, a Brief Description of the Several Views of the Drawing(s). Applicant has added Figures 16-18 including the mention of reference signs 17-17 and 18-18 in the Brief Description of the Drawings. As such, Applicant respectfully submits that reference characters 17-17 and 18-18 appearing in the drawings similarly appear in the description.

In addition, the drawings were objected under 37 CFR 1.83(a) because the drawings allegedly did not show every feature of the invention specified in the claims. More specifically, the Examiner stated that “the second portion having a radial cut must be shown or the feature(s) canceled from the claim(s).”

Applicant has amended Claim 11 to changed “second portion” to “first portion” and “radial cut” to “circumferential gap”. As such, reference 40 (first portion), and reference 46 (circumferential gap) as they appear in the original drawings, at least at Figures 5 and 6, show every feature of the invention specified in the claims.

Applicant is also contemporaneously filing substitute formal drawings (5 sheets) for the above referenced patent application. No new matter has been added in this regard.

SPECIFICATION

The disclosure has been objected to as allegedly containing a number of informalities. Applicant has therefore amended (1) the Brief Description of the Drawings to include Figures 16-18; (2) the TITLE to now read APPARATUS AND RELATED METHODS FOR COUPLING PIPE; and (3) page 21, lines 3-5 to read “Finally, FIGS. 16-18 illustrate a stretching tool 90 for use in connection with the apparatus of the present invention, including a channel or path 92 into which an edge 94 of the first piece of pipe 96 can be inserted in its originally fabricated shape.” Applicant respectfully submits that the aforementioned amendments are appropriate and fully responsive to the Examiner’s alleged disclosure informalities.

CLAIMS

Claims 1-15, 19, and 20 were previously presented. In the present amendment: Claims 21-26 have been added; and Claim 4 has been canceled. Thus, after entry of the present amendment, Claims 1-3, 5-15, and 19-26 will be pending.

Claims 1-15 and 19 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has amended Claims 1, 8-10, 13-15, and 19 as indicated herein, and respectfully submits that the Section 112 objection has been overcome. Further in this regard, Claims 2, 3, 11 and 19 were amended to more clearly define the original apparatus. Applicant believes that no new matter has been added by the amendments and that the amendments in no way affect the claim scope thereof. Claims 21-26 were added to more clearly define the original apparatus and provide further alternative approaches for defining Applicant’s inventions. Support

for the new claims is in Applicant's original specification at least at page 13, l. 13-20; page 20, l. 11-17; and Figures 2, 12, and 13.

Claims 1, 2, 4, 6, 7, 19, and 20 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Lee (U.S. Patent No. 4,875,714) or Kessler et al (U.S. Patent No. 3,784,235); Claims 1-3, 19 and 20 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Noble (U.S. Patent No. 5,813,701); and Claims 1-3, 5-7, 19 and 20 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Fochler (U.S. Patent No. 3,330,303) and Roberts, Jr. (U.S. Patent No. 4,037,626). As explained below, Applicant respectfully traverses those rejections.

Of the above-referenced rejected claims, Claims 1, 19, and 20 are independent. Accordingly, once patentability of those claims is established, all claims depending from them (which includes all other pending claims) are likewise allowable. Similarly, allowability of the new independent claims renders allowable any claims depending therefrom.

In regard to Claim 1, the Examiner asserts that Lee discloses an apparatus for joining a plurality of pieces of pipe, including a first piece of pipe (12) fabricated with a cross-sectional sidewall pattern along its length that is similar in size and shape to the cross-sectional sidewall pattern of a second piece of pipe (14). Applicant has amended Claim 1 as set forth above, and respectfully submits that the Lee rejection should be withdrawn.

In passing, Applicant notes the parent Lee '902 patent (for which Applicant is contemporaneously filing an Information Disclosure Statement), and submits that nothing in that Lee '902 patent overcomes the remarks set forth herein regarding allowability of the claims as amended herein.

Among other things, Lee does not teach or make obvious Claim 1's required first and second pieces of pipe with "sidewall corrugation pattern along their lengths". Instead, Lee (and the Lee '902 patent) teaches only to join together straight-walled pipe sections.

Lee also does not teach or make obvious Claim 1's required "female engagement structure formed from the sidewall corrugation pattern of the first piece of pipe and a male engagement structure formed from the sidewall corrugation pattern of the second piece of pipe". Having no corrugations in its sidewalls, Lee cannot have engagement structures formed from those corrugations.

Claim 19 includes similar "corrugation" and "ends formed from the corrugation" limitations, and Claim 20 includes similar limitations (albeit only the female end being formed from the corrugated sidewall pattern) which (as with Claim 1, above) are not taught or made obvious by Lee.

By using the pattern of corrugations for assembling pipe pieces to each other, a piece of pipe can be cut at any of a repeating series of locations along its length and then joined together with another similar piece of pipe to form a male/female connection. As noted in the present specification, "Moreover, persons of ordinary skill in the art will understand that a plurality of similarly sized and shaped pipe elements can be provided to permit assembly of a multiplicity of such elements together into a pipeline of any selected length. For many pipe materials, the invention permits easy field adaptations for length, in that a male end can be "made" on site simply by cutting a pipe element at the nearest shoulder (such as shoulder 24, FIG. 2) to the desired length." (Applicant's original specification at pg. 15, l. 17-20; pg. 16, l. 1-2; and further defined in new Claims 24 and 25) In other words, as long as there is an adequate supply of pipe available, the pipe installers never have to worry about having the correct number of male

connections to go along with female connections. In addition, Applicant's invention facilitates ease of manufacturing, as a single size and shape and sidewall pattern of pipe may be produced.

In contrast to Applicant's invention of Claims 1, 19, and 20 (and claims depending therefrom), the pipe pieces of the Lee invention must be manufactured with distinct female and male connections. The outside smooth surface of the Lee invention provides no pattern along its length such that the pipe may be cut at any of a repeating series of locations along its length to form male and female connections. In addition, the Lee invention uses a complicated structure to "ensure that the ribs and grooves of the female and male end connections do not prematurely engage until the full joined connection is made" (col. 4, l. 1-3). In this regard, "the end or outer ribs 16 and 28 of the female and male end connections, respectively are constructed to be wider than the end grooves 20 and 32 of the female and male end connections, respectively." (col. 4, l. 4-7). Clearly, the simplicity of Applicant's invention is missing from Lee.

Just as Lee does not disclose or make obvious Applicant's inventions as set forth in Claims 1, 19, and 20 (or those in claims depending therefrom), none of the other art of which Applicant is aware discloses or makes obvious those inventions, alone or in any permissible combination.

For example, the Examiner asserts that Kessler et al. discloses an apparatus for joining a plurality of pieces of pipe, including a first piece of pipe (12) fabricated with a cross-sectional sidewall pattern along its length that is similar in size and shape to the cross-sectional sidewall pattern of a second piece of pipe (10). However, similar to the Lee invention and as discussed above, Kessler et al. neither discloses nor make obvious the "corrugation" and "ends formed from the corrugation" limitations discussed above in Claims 1, 19, and 20 (and claims depending therefrom).

Again, in contrast to Applicant's invention, the pipe pieces of the Kessler et al. invention must be manufactured with distinct female and male connections. As shown in Figure 1, the female attachment 12 has a circumferential groove 14 formed interiorly therein a predetermined distance from the edge thereof. The male attachment member 10 includes a reduced diameter end portion 18 whose outer diameter is slightly smaller than the inner diameter of the female attachment member 12 (col. 3, l. 42-59). In addition, the reduced diameter portion 18 terminates at a shoulder 22 which defines the beginning of a second reduced diameter portion 24 of a length substantially shorter than the length of reduced diameter portion 18 (col. 1, l. 59-63). As such, the mating connections of the Kessler et al invention are *not* of similar size and shape.

Next, the Examiner asserts that Noble discloses an apparatus for joining a plurality of pieces of pipe, including a first piece of pipe (10b) fabricated with a cross-sectional sidewall pattern along its length that is similar in size and shape to the cross-sectional sidewall pattern of a second piece of pipe (10a). However, similar to the Lee invention and as discussed above, Noble neither discloses nor make obvious the "corrugation" and "ends formed from the corrugation" limitations discussed above in Claims 1, 19, and 20 (and claims depending therefrom).

In contrast to Applicant' invention, the Noble invention cannot be cut at any of a selectable multiplicity of repeating locations along its length and then rejoined using those same cuts. The Noble invention, similar to Lee and Kessler, must be joined at designated ends where a first interlockable collar portion 20 and a second interlockable collar portion 22 are located. In addition, there is no disclosure as to the interior structure of the downspout extensions 10a and 10b along the adjustable portion 18. Thus, it appears that the adjustable portions of the Noble invention were not intended to be cut and then rejoined using those same cut portions.

Similarly, the Examiner asserts that Fochler discloses an apparatus for joining a plurality of pieces of pipe, including a first piece of pipe (10) fabricated with a cross-sectional sidewall

pattern along its length that is similar in size and shape to the cross-sectional sidewall pattern of a second piece of pipe (10), the first piece having a first female end that is temporarily deformed for receiving a non-deformed end of the second piece of pipe, the temporary deformation being both sufficiently large to permit the insertion of the non-deformed end of the second piece of pipe but also sufficiently small to ensure that the material memory of the first end returns the first end toward its original non-deformed configuration with sufficient compressive force to grip the second end and prevent its inadvertent removal from engagement with the first end.

The Fochler and Roberts, Jr. references cited by the Examiner likewise neither disclose nor make obvious the “corrugation” and “ends formed from the corrugation” limitations discussed above in Claims 1, 19, and 20 (and claims depending therefrom).

Regarding the new claims submitted herewith, Applicant respectfully submits that none of the art of which Applicant is aware discloses or makes obvious those inventions, alone or in any permissible combination. Of those claims, 21, 22 and 24 are independent, so once those are allowable, all claims depending from them are allowable. The remarks below therefore are directed to the allowability of Claims 21, 22, and 24.

Among other things, Claim 21 requires “at least one of the first and second pipe segments having a tapered leading edge adapted to generally confront the other pipe segment along a tapered mating surface upon coupling of the pipe segments to each other.” Neither Lee nor any of the other art (nor any permissible combination thereof) discloses or makes obvious the benefits of a tapered surface that mates with a tapered leading edge of the other pipe segment.

Among other things, Claim 22 requires a “male end having a substantially non-horizontal outer surface when viewed in lengthwise cross-section, said outer surface adapted to substantially engage the other pipe segment upon coupling of the pipe segments”. Neither Lee nor any of the other art (nor any permissible combination thereof) discloses or makes obvious the benefits of a

male end having a substantially non-horizontal outer surface when viewed in lengthwise cross-section. For example, and in contrast to that claimed feature, Lee includes multiple horizontal portions (e.g., the upper sides of ribs 28 and 30, in Lee's Fig. 1) along the exterior of its male end.

Claim 24 requires a "similar size and shape sidewall corrugation pattern along its length, the pipe having a female engagement structure positioned at one end of the pipe, said engagement structure integrally formed from the sidewall corrugation pattern." Neither Lee nor any of the other art (nor any permissible combination thereof) discloses or makes obvious the benefits of a female engagement structure integrally formed from the sidewall corrugation pattern.

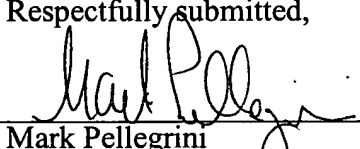
In view of the amendments and remarks set forth above, it is thought that the application is now in condition for allowance, notice whereof is respectfully requested of the Examiner.

If the Examiner has any questions regarding the foregoing, or if the Examiner would like to discuss any remaining or new issues regarding this communication, the Examiner is invited to contact the undersigned representative of Applicant at (949) 718-6750.

Respectfully submitted,

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Enclosures